

TIP110/112
TIP115/117

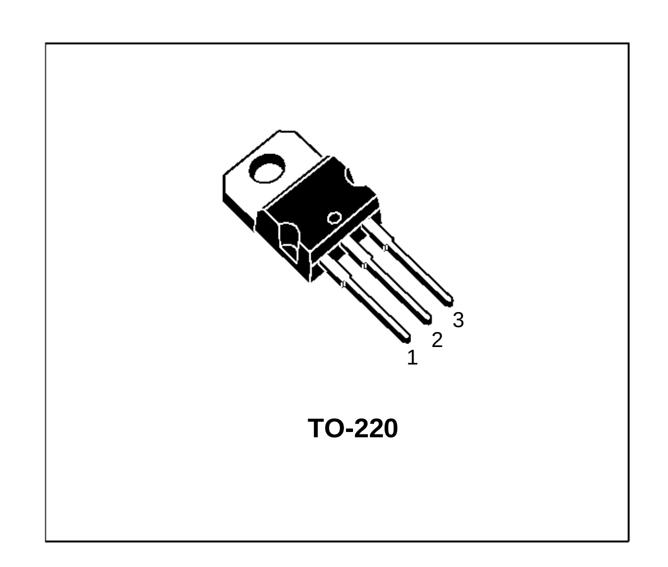
COMPLEMENTARY SILICON POWER DARLINGTON TRANSISTORS

- SGS-THOMSON PREFERRED SALESTYPES

DESCRIPTION

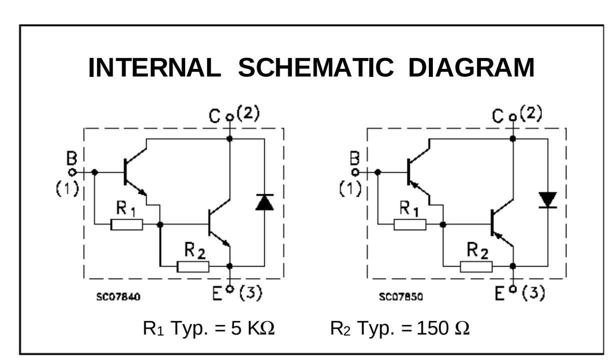
The TIP110, and TIP112 are silicon epitaxial-base NPN transistors in monolithic Darlington configuration mounted in Jedec TO-220 plastic package. They are intented for use in medium power linear and switching applications.

The complementary PNP types are TIP115, and TIP117.



TO-220

INTERNAL SCHEMATIC DIAGRAM



R_1 Typ. = 5 KΩ R_2 Typ. = 150 Ω

ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter		Value		Unit
		NPN	TIP110	TIP112	
		PNP	TIP115	TIP117	
V_{CBO}	Collector-Base Voltage (I_E = 0)		60	100	V
V_{CEO}	Collector-Emitter Voltage (I_B = 0)		60	100	V
V_{EBO}	Emitter-Base Voltage (I_C = 0)		5		V
I_C	Collector Current		2		A
I_{CM}	Collector Peak Current		4		A
I_B	Base Current		50		mA
P_{tot}	Total Dissipation at $T_{case} \leq 25\ ^oC$ $T_{amb} \leq 25\ ^oC$		50 2		W W
T_{stg}	Storage Temperature		-65 to 150		^oC
T_j	Max. Operating Junction Temperature		150		^oC

* For PNP types voltage and current values are negative.

THERMAL DATA

$R_{thj-case}$	Thermal Resistance Junction-case	Max	2.5	$^{o}C/W$
$R_{thj-amb}$	Thermal Resistance Junction-ambient	Max	62.5	$^{o}C/W$

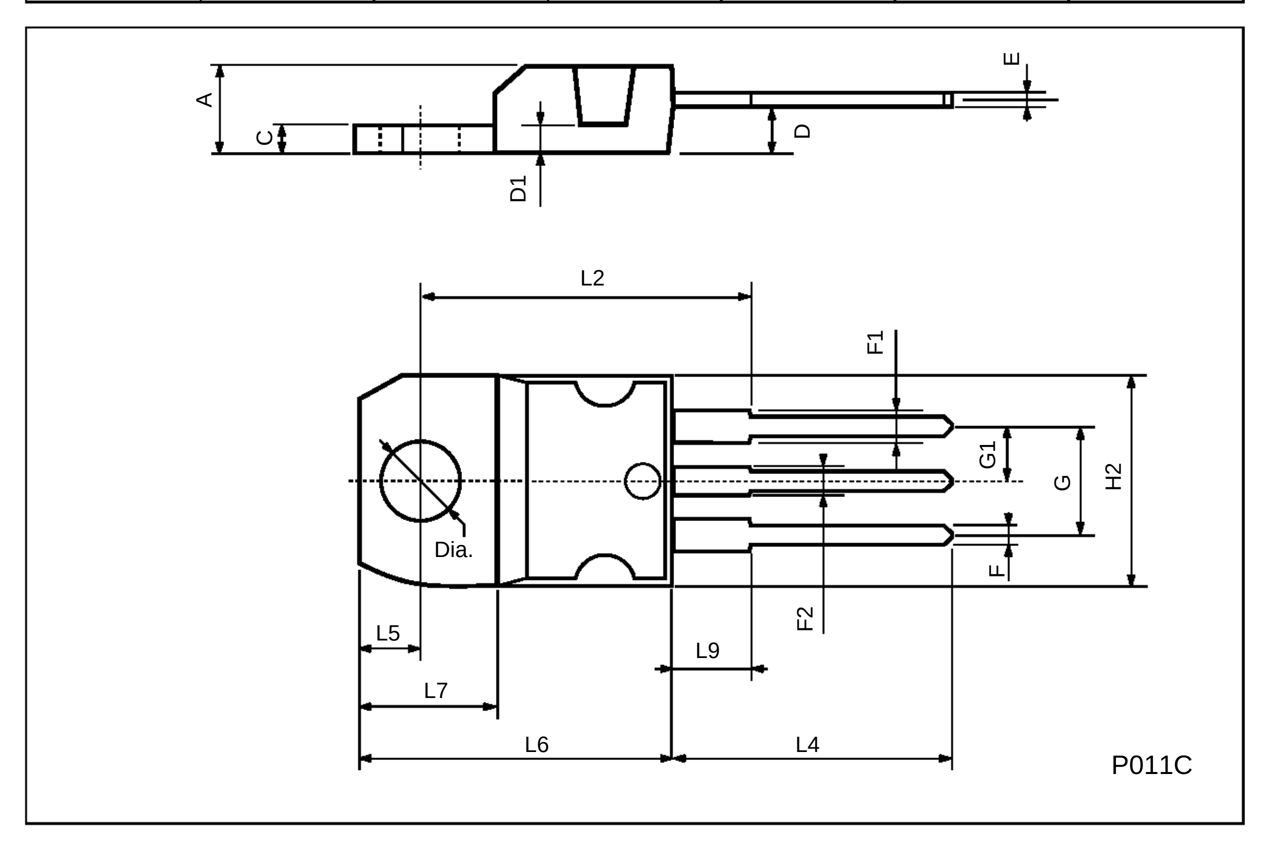
ELECTRICAL CHARACTERISTICS (T_{case} = 25 ^{o}C unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I_{CEO}	Collector Cut-off Current (I_B = 0)	V_{CE} = Half Rated V_{CEO}			2	mA
I_{CBO}	Collector Cut-off Current (I_E = 0)	VCB = Half Rated V_{CBO}			1	mA
I_{EBO}	Emitter Cut-off Current (I_C = 0)	V_{EB} = 5 V			2	mA
$V_{CEO(sus)}$*	Collector-Emitter Sustaining Voltage (I_B = 0)	I_C = 30 mA for **TIP110/115** for **TIP112/117**	 60 100			 V V
$V_{CE(sat)}$*	Collector-Emitter Saturation Voltage	I_C = 2 A I_B = 8 mA			2.5	V
V_{BE}*	Base-Emitter Voltage	I_C = 2 A V_{CE} = 4 V			2.8	V
h_{FE}*	DC Current Gain	I_C = 1 A V_{CE} = 4 V I_C = 2 A V_{CE} = 4 V	1000 500			

* For PNP types voltage and current values are negative.

TO-220 MECHANICAL DATA

DIM.	mm			inch		
	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
A	4.40		4.60	0.173		0.181
C	1.23		1.32	0.048		0.051
D	2.40		2.72	0.094		0.107
D1		1.27			0.050	
E	0.49		0.70	0.019		0.027
F	0.61		0.88	0.024		0.034
F1	1.14		1.70	0.044		0.067
F2	1.14		1.70	0.044		0.067
G	4.95		5.15	0.194		0.203
G1	2.4		2.7	0.094		0.106
H2	10.0		10.40	0.393		0.409
L2		16.4			0.645	
L4	13.0		14.0	0.511		0.551
L5	2.65		2.95	0.104		0.116
L6	15.25		15.75	0.600		0.620
L7	6.2		6.6	0.244		0.260
L9	3.5		3.93	0.137		0.154
DIA.	3.75		3.85	0.147		0.151




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MICROELECTRONICS